

## **Geometry                      Unit 8 Review**

- 1.** What is your name?
  
- 2.** In the proportion,  $\frac{a}{b} = \frac{c}{d}$ , which are the means and which are the extremes?
  
- 3.** What is a mean proportional?
  
  
  
  
  
- 4.** What are similar shapes?
  
  
  
  
  
- 5.** What is the symbol for similar?
  
  
  
  
  
- 6.** What is a scale factor?
  
  
  
  
  
- 7.** What are the 3 ways to prove triangles are similar?

## 8.1

### RATIO AND PROPORTION

Examples on  
pp. 457–460

**EXAMPLE** You can solve a proportion by finding the value of the variable.

$$\frac{x}{12} = \frac{x+6}{30}$$

Write original proportion.

$$30x = 12(x+6)$$

Cross product property

$$30x = 12x + 72$$

Distributive property

$$18x = 72$$

Subtract  $12x$  from each side.

$$x = 4$$

Divide each side by 18.

**Solve the proportion.**

8.  $\frac{3}{x} = \frac{2}{7}$

9.  $\frac{a+1}{5} = \frac{2a}{9}$

10.  $\frac{2}{x+1} = \frac{4}{x+6}$

11.  $\frac{d-4}{d} = \frac{3}{7}$

## 8.2

### PROBLEM SOLVING IN GEOMETRY WITH PROPORTIONS

Examples on  
pp. 465–467

**EXAMPLE** In 1997, the ratio of the population of South Carolina to the population of Wyoming was 47:6. The population of South Carolina was about 3,760,000. You can find the population of Wyoming by solving a proportion.

$$\frac{47}{6} = \frac{3,760,000}{x}$$

$$47x = 22,560,000$$

$$x = 480,000 \quad \text{The population of Wyoming was about 480,000.}$$

**12.** You buy a 13 inch scale model of the sculpture *The Dancer* by Edgar Degas. The ratio of the height of the scale model to the height of the sculpture is 1 : 3. Find the height of the sculpture.

**13.** The ratio of the birth weight to the adult weight of a male black bear is 3 : 1000. The average birth weight is 12 ounces. Find the average adult weight in pounds.

## 8.3

### SIMILAR POLYGONS

Examples on  
pp. 473-475

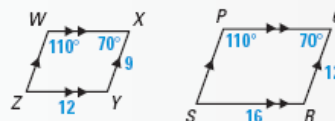
**EXAMPLE** The two parallelograms shown are similar because their corresponding angles are congruent and the lengths of their corresponding sides are proportional.

$$\frac{WX}{PQ} = \frac{ZY}{SR} = \frac{XY}{QR} = \frac{WZ}{PS} = \frac{3}{4}$$

$$m\angle P = m\angle R = m\angle W = m\angle Y = 110^\circ$$

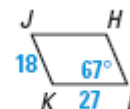
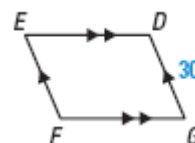
$$m\angle Q = m\angle S = m\angle X = m\angle Z = 70^\circ$$

The scale factor of  $\square WXYZ$  to  $\square PQRS$  is  $\frac{3}{4}$ .



$\square DEFG \sim \square HJKL$

**14.** Find the scale factor of  $\square DEFG$  to  $\square HJKL$ .



**15.** What is DE?

**16.** What is  $m\angle F$ ?

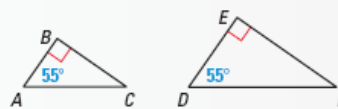
**17.** What is the ratio of the perimeter of  $\square HJKL$  to  $\square DEFG$ ?

8.4

SIMILAR TRIANGLES

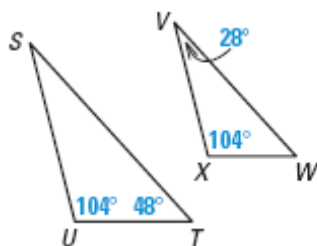
Examples on  
pp. 480–482

**EXAMPLE** Because two angles of  $\triangle ABC$  are congruent to two angles of  $\triangle DEF$ ,  $\triangle ABC \sim \triangle DEF$  by the Angle-Angle (AA) Similarity Postulate.

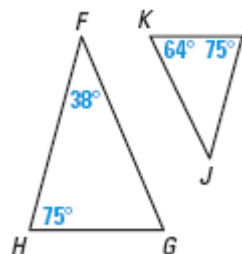


Determine whether the triangles can be proved similar or not. Explain why or why not. If they are similar, write a similarity statement.

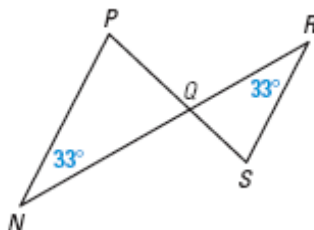
18.



19.



20.



8.5

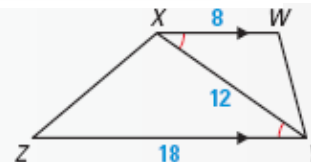
PROVING TRIANGLES ARE SIMILAR

Examples on  
pp. 488–491

**EXAMPLES** Three sides of  $\triangle JKL$  are proportional to three sides of  $\triangle MNP$ , so  $\triangle JKL \sim \triangle MNP$  by the Side-Side-Side (SSS) Similarity Theorem.



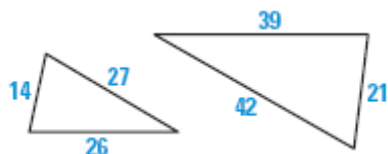
Two sides of  $\triangle XYZ$  are proportional to two sides of  $\triangle WXY$ , and the included angles are congruent. By the Side-Angle-Side (SAS) Similarity Theorem,  $\triangle XYZ \sim \triangle WXY$ .



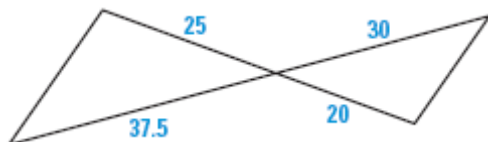
# Geometry Unit 8 Review

Are the triangles similar? If so, state the similarity and a postulate or theorem that can be used to prove that the triangles are similar.

21.



22.

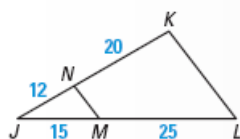


8.6

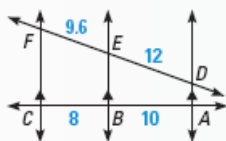
## PROPORTIONS AND SIMILAR TRIANGLES

Examples on  
pp. 498–501

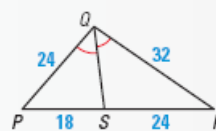
**EXAMPLES** You can use proportionality theorems to compare proportional lengths.



$$\frac{JN}{NK} = \frac{12}{20} = \frac{3}{5} \quad \frac{JM}{ML} = \frac{15}{25} = \frac{3}{5}$$



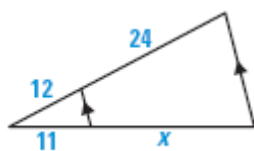
$$\frac{AB}{BC} = \frac{10}{8} = \frac{5}{4} \quad \frac{DE}{EF} = \frac{12}{9.6} = \frac{5}{4}$$



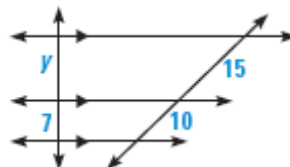
$$\frac{QP}{QR} = \frac{24}{32} = \frac{3}{4} \quad \frac{SP}{SR} = \frac{18}{24} = \frac{3}{4}$$

Find the value of the variable.

23.



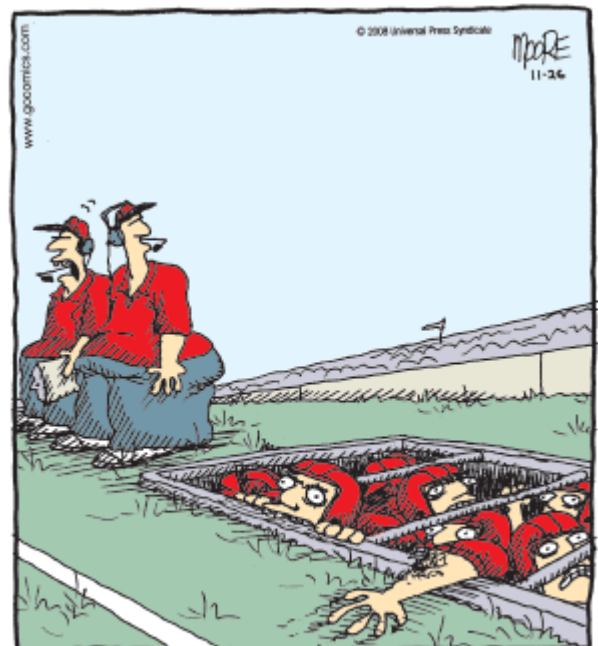
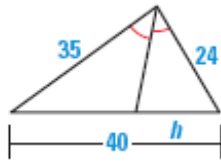
24.



# Geometry

# Unit 8 Review

25.



"They're gonna punt. ... Release the special teams."